UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/997,002	11/30/2001	Toshitaka Semma	216656US2	7246

22850 7590 06/27/2007

OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER	
QIN, YIXING	

ART UNIT	PAPER NUMBER
2625	

NOTIFICATION DATE	DELIVERY MODE
06/27/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com
oblonpat@oblon.com
jgardner@oblon.com

Office Action Summary	Application No.	Applicant(s)	
	09/997,002	SEMMA ET AL.	
	Examiner	Art Unit	
	Yixing Qin	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 June 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,5-11,13,14,16-18,20,21,23-27,29,30,32-34,36,37 and 39-42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5-11,13,14,16-18,20,21,23-27,29,30,32-34,36,37 and 39-42* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

In response to applicant's amendment received 6/4/07, all requested changes have been entered.

Response to Arguments

Applicant's arguments filed 6/4/07 have been fully considered but they are not persuasive. The main argument is that the applicant's invention counts by a number other than one while the Midgley reference counts by one. The Examiner notes that while the applicant's invention can increment by, for example, five prints, which corresponds to the total number of prints in a job, the controller for the count still must count by one, until it actually reaches five. This is because a machine cannot simply "eyeball" a print job and determine how many pages it contains, it has to calculate it by continuously counting the pages one by one, just like the Midgley reference. Just because the Midgley reference decrements by one at a time, it still effectively totals the number of printed pages in a print job.

Furthermore, the claim that the applicant's invention counts by more than one creates issues when only one page is printed. If the controller is figured to count by a number other than one, then a mistake would be made when only one page is printed and the controller is counting by 2 or more.

Regarding the citation of the Beard reference, column 2, lines 25-35 of Beard describes another patent of the prior art, Tadokoro (U.S. Patent No. 4,586,147), that teaches the storing of cumulative number of prints in a nonvolatile memory in a printer.

While the invention of Beard is different, the Tadokoro invention does provide sufficient evidence for the previous Official Notice.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-42 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Again, from the arguments above, the claim that the applicant's invention counts by more than one creates issues when only one page is printed. If the controller is figured to count by a number other than one, then a mistake would be made when only one page is printed and the controller is counting by, for example, 2 or more. This would cause the total number of cumulative prints to be incorrect by a significant amount if a large number of single page documents are to be created and would be unclear by what number would be incremented if only a single page is printed.

In looking at P[0052] and Fig. 9 of the applicant's specification, S95 is still one possible print condition, it's just not condition A or B. Thus, by the fact that the count is set to 1, in the condition not A or B, the new limitations to the claim are rendered indefinite.

For the purposes of a rejection, a new reference, Hilton (U.S. Patent No. 6,158,837), is used to teach the idea of counting by a value other than 1 when decrementing the number of counts from a maximum count.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

I. Claims 1, 25, 41 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Midgley (U.S. Patent No. RE 35,751) in view of Hilton (U.S. Patent No. 6,158,837) and further in view of Official Notice.

Regarding claims 1 and 25, Midgley discloses an image forming apparatus comprising:

an apparatus body; (Fig. 6)

image forming means at least partly implemented by a replaceable part, which is removably mounted to said apparatus body; (column 3, lines 17-27 - toner cartridges 12,14 and 16. One can see in Fig. 6 they are mounted on the machine 10.)

counting means for counting prints sequentially output with the replaceable part; (column 6, lines 23-29 - counting of prints in a printing run and the temporary storage of this count in RAM 103.

storing means and first writable and readable nonvolatile storing means built in said apparatus body; (Fig. 1 – ROM 102)

second writable and readable nonvolatile storing means built in the replaceable part; (column 5, lines 37-40 - memories for each cartridge. Column 5, line 15 identifies 90 as an EEPROM) and

Midgley generally discloses the following limitation:

a controller configured to store a limit number of prints particular to the replaceable part in said first nonvolatile storing means, storing, after an image forming operation, a cumulative number of prints printed by said replaceable part in said first nonvolatile storing means at least until the replaceable part is replaced with a different replaceable part and in said second nonvolatile storing means, and reporting a time for replacing said replaceable part when said cumulative number stored in said first nonvolatile storing means exceeds said limit number of prints stored in said first nonvolatile storing means. (column 6, lines 11-15 – comparison as to see whether the cartridge has reaches its end of life. Column 6, lines 26-37 – a count is made of the total number of prints and stored in the RAM 103 and the memory 90 of each toner cartridge 12, 14 and 16 are appropriately updated. Column 6, lines 41-47 – warning message telling the user that a cartridge's lifetime is about to be up.

It does not explicitly disclose "...storing, after an image forming operation, a cumulative number of prints printed by said replaceable part in said storing means at least until the replaceable part is replaced with a different replaceable part and in said second nonvolatile storing means..."

However, as mentioned in the arguments above, Midgley discloses in column 5, lines 41-43 that each cartridge is pre-programmed with a max number of pages that can be printed, Y. Column 6, lines 23-47 discloses how a "new current image count" value is calculated. This value reflects the number of prints left that a cartridge can make. The Examiner takes Official Notice that "...storing, after an image forming operation, a cumulative number of prints printed by said replaceable part..." is calculated using the addition/subtraction of numbers, which is well known. From the Midgley reference, obtaining this cumulative value of prints printed is a manipulation of numbers based upon a simple addition formula, that [cumulative printed] + [current image count] = total number of prints, Y. By subtracting the new current image count from Y, one obtains the cumulative number of counts that has been made. The storage of this value in a memory would be inherent since a number cannot exist abstractly on a machine, and would be a matter of preference as to which memory would store this value.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have used information from the Midgley reference to figure out a cumulative number of prints printed value prior to the replacement of a cartridge since the Examiner takes official notice that the calculation of a count of prints printed is

based upon a simple addition/subtraction formula using the information provided by Midgley.

The motivation would have been to allow a printing machine to keep track of the number of prints so that it can properly warn a user to replace a cartridge.

Therefore, it would have been obvious to use Midgley to obtain the invention as specified.

Semma also does not explicitly disclose "wherein the controller is configured to determine an image forming condition setting and to increment a cumulative number stored in memory in the apparatus body by a number other than one for each of the prints sequentially output with the replaceable part while the image forming condition setting is set to a first of at least two available image forming condition settings."

However, Hilton discloses in Fig. 5 and column 6, lines 13-38 that the total count can be decremented after the job is completed, meaning it can decrement by a count other than 1.

Semma and Hilton are combinable because both are in the art of totaling printed pages to enable an user to know when a cartridge should be replaced.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have used a counting system that can count by a value other than 1.

The motivation would have been to allow users to replace cartridges more efficiently.

Therefore, it would have been obvious to combine Semma and Hilton to obtain the invention as specified.

Regarding claims 41 and 42, Midgley discloses an IC (Integrated Circuit) chip to be connected to a CPU (Central Processing Unit) built in an apparatus body of an image forming apparatus when removably mounted to said apparatus body, and including nonvolatile storing means allowing data to be written therein or read thereoutof under control of said CPU, said nonvolatile storing means stores ID information particular to said IC chip and a cumulative number of prints output by said apparatus body with said IC chip, (Fig. 8 and column 5, lines 3-8 – cartridges have a terminal board 97 – i.e. an IC – that is used to connect to the machine control unit – MCU 100 of Fig. 1 – of the printer. Also note column 5, lines 16-20. Column 6, lines 11-15 and 29-37 disclose the reading of count information from the IC chip by the MCU.)

the ID information and the cumulative number of prints are read out of said storing means and transferred to said apparatus body when said IC chip is mounted to said apparatus body, (column 5, lines 66-67 to column 6, lines 1-2 discloses that an ID number could be read. One knows this ID number would stored in the memory 90.) and

Midgley discloses in column 6, lines 23-37 discloses the updating of the print counts to help determine the life of a cartridge. Line 30, especially, disclose the fetching of the count from the memory 90 of the cartridge in order to calculate a new count. Midgley discloses the time for replacing in column 6 lines 38-47. Line 38 discloses that this check is for replacement is prior to the returning of cumulative information to the cartridge.

It does not explicitly disclose "after management information including the cumulative number of prints have been processed, an existing cumulative number of prints stored within the apparatus body at least until the IC chip is removed and replaced with a different IC chip is updated by the cumulative number of prints transferred from said IC chip."

However, as mentioned in the arguments above, Midgley discloses in column 5, lines 41-43 that each cartridge is pre-programmed with a max number of pages that can be printed, Y. Column 6, lines 23-47 discloses how a "new current image count" value is calculated. The Examiner takes Official Notice that "...storing, after an image forming operation, a cumulative number of prints printed by said replaceable part..." is calculated using the addition/subtraction of numbers, which is well-known.. From the Midgley reference, obtaining this cumulative value of prints printed is a manipulation of numbers based upon a simple addition formula, that [cumulative printed] + [current image count] = total number of prints, Y. By subtracting the new current image count from Y, one obtains the cumulative number of counts that has been made. The storage of this value in a memory would be inherent since a number cannot exist abstractly on a

machine, and would be a matter of preference as to which memory would store this value.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have used information from the Midgley reference to figure out a cumulative number of prints printed value prior to the replacement of a cartridge since the Examiner takes official notice that the calculation of a count of prints printed is based upon a simple addition/subtraction formula using the information provided by Midgley.

The motivation would have been to allow a printing machine to keep track of the number of prints so that it can properly warn a user to replace an IC chip.

Therefore, it would have been obvious to use Midgley to obtain the invention as specified.

II. Claims 2, 3, 7, 10-11, 18, 26, 27, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Midgley (U.S. Patent No. RE 35,751) in view of Hilton (U.S. Patent No. 6,158,837) and further in view of Kawano et al (U.S. Patent No. 5,012,286 – "Kawano").

Regarding claims 2, 10 , 26, Midgley discloses the identification of a cartridge

It does not explicitly disclose "wherein said control means stores ID (identification) information of an individual replaceable part in said second nonvolatile

storing means, transfers said ID information to said storing means when said replaceable part is used, reads said ID information out of said second nonvolatile storing means when said replaceable part is mounted to said apparatus body, and updates, if said ID information is not identical with ID information particular to a previous replaceable part stored in said storing means, contents of said storing means with the number of prints and said ID information stored in said second nonvolatile storing means."

However, Kawano discloses in column 7, lines 60-67 and column 8 line 1 that there is no need for updating if the developing units is the same – hence, an update is needed when a new developing unit is put in. One would understand that the storage of this information in any writable memory is possible, depending on where the related information to this ID is stored.

All references are combinable because both references are in the art of detection of needed replacement of consumables in a printer.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have an updating mechanism in Midgley to store updated information from a cartridge.

The motivation would be to allow different types of cartridges to be used.

Therefore, it would have been obvious to combine all references to obtain the invention as specified.

Regarding claims 3, 7, 11, 18, 27, and 34, Midgley discloses in column 6, lines 26-37 that a count is made of the total number of prints and stored in the RAM 103 and the memory 90 of each toner cartridge 12, 14 and 16 are appropriately updated.

It does not explicitly disclose "...further comprising means for allowing the limit number of prints to be variably written to said first nonvolatile storing means."

One skilled in the art knows that the prints from each new job that occurs can be different, i.e. variable, so a variable number can be written to the RAM during different print jobs.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have allowed a variably written limit number.

The motivation would have been to enable variable types of cartridges to be used.

Therefore, it would have been obvious to combine Midgley and Kawano to obtain the invention as specified.

III. Claims 5, 6, 9, 13, 14, 16, 17, 20, 21, 23, 24, 29, 30, 32, 33, 36, 37, 39 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Midgley (U.S. Patent No. RE 35,751)) in view of Hilton (U.S. Patent No. 6,158,837) in view of Kawano et al (U.S. Patent No. 5,012,286 – "Kawano") and further in view of Samuels (U.S. Patent No. 5,937,225).

Regarding claims 5, 13, 16, 20, 23, 29, 32, 36, and 39, the Midgley and Kawano references discloses ways for detecting consumables in a printer.

They do not explicitly disclose "...wherein the image forming condition setting is based on image density."

However, Samuels, discloses in column 1, lines 66-67 and column 2, lines 1-4 that the density would be a factor in determining the number of counts.

All references are combinable because they are in the art of detection of needed replacement of consumables in a printer.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have used image density as a criteria for determining the number of sheets that can be printed.

The motivation would have been to take into account that some prints would require more resources and properly adjust the replacement period for a cartridge.

Therefore, it would have been obvious to combine all references to obtain the invention as specified.

Regarding Claims 6, 9, 14, 17, 21, 24, 30, 33, 37, and 40, the Midgley and Kawano references discloses ways for detecting consumables in a printer.

They do not explicitly disclose "wherein the image forming condition setting is based on a resource and energy save mode available for image formation."

However, Samuels suggests from claim 5 above and column 3, lines 38-49 that density and pixel count are two factors in determining the overall life of the cartridge.

One skilled in the art would know that a common resource save mode is draft printing, which one knows is of a lower quality or resolution (i.e. less density or lower pixel count).

All references are combinable because they are in the art of detection of needed replacement of consumables in a printer.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have used an resource saving mode in determining the lifespan of a cartridge.

The motivation would have been to take into account that some prints would require less resources and properly adjust the replacement period for a cartridge.

Therefore, it would have been obvious to combine all three references to obtain the invention as specified.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yixing Qin whose telephone number is (571)272-7381. The examiner can normally be reached on M-F 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Twyler Lamb can be reached on (571)272-7406. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

YQ

Twyler M. Lamb
Supervisory Patent Examiner